UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,015	02/10/2006	Christoph Herrmann	GB040085	2292

24737 7590 09/30/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER	
BERHANE, YOSIEF H	

ART UNIT	PAPER NUMBER
4144	

MAIL DATE	DELIVERY MODE
09/30/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,015	HERRMANN, CHRISTOPH	
	Examiner	Art Unit	
	YOSIEF BERHANE	4144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/10/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/24/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-23 have been examined and are pending.

Information Disclosure Statement

2. An initialed and dated copy of Applicant's IDS form 1449 submitted 8/24/2007, is attached to the instant Office action.

Specification

The disclosure is objected to because of the following informalities: spelling errors. One such example is the misspelling of the word "signalling". Applicant uses the incorrect spelling "signaling" through out the application. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 2-10 and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Non-Patent Literature "Reliable Multicast Protocol with a Representative Acknowledgment Scheme for Wireless Systems" to Inoue et al. (hereinafter "Inoue").

As per claim 2, the combination of Inoue and Satran teach the method of claim 1. Furthermore, Inoue teaches wherein the confirmation message is at least one of a negative

acknowledgement message indicating that the at least one second receiving station unsuccessfully decoded the data and (Page 856, Inoue discloses where if an NRS (Non-representative station used to return NACK responses) failed to receive the multicast data frame correctly, the NRS returns a NACK.)

a positive acknowledgement message indicating that the data was errorlessly decoded at the at least one second receiving station (Page 856, Inoue discloses where the polled RS returns an ACK or NACK frame depending on its result of reception).

As per claim 3, Inoue teaches the method of claim 2, wherein, when the confirmation message is a negative acknowledgement message, the transmitting station retransmits the data (Page 856, Inoue discloses the case when the base station received a NACK frame, the base station retransmits the multicast data frame again).

As per claim 4 and 19, Inoue teaches the method of claim 2, wherein the plurality of first receiving stations is grouped into a plurality of groups (Station group1, Station group2 and Station group3, fig. 3, page 855) of first receiving stations such that (Page 855, section 3.1, Inoue disclose a station must be a member of a station group. The procedure to join or form a station group is described)

a first group (Station group1, Fig. 3) includes at least one third receiving station (Fig. 3, station group 1 can have multiple stations) of the plurality of first receiving stations and a second group (Station group2, fig. 3) includes at least one fourth receiving station (Fig. 3, station group2 can have multiple stations) of the plurality of first receiving stations (Figure 3, on page 855 shows an example of multiple groups of receiving stations which are capable of including any number of receiving stations to join the multiple groups);

wherein a first feedback phase is assigned to the first group and a second feedback phase is assigned to the second group in accordance with a feedback scheme (Page 856, fig. 4 discloses a means of polling which allows each group to signal back to the source at predetermined intervals of time. **Note that examiner understands feedback phase to be time slots for signaling to the base station or other mobile stations. Also, the examiner understands feedback scheme as means for receiving/sending confirmation messages regarding the decoding of the multicast data**);

wherein the at least one third receiving station (Fig. 3, shows multiple mobile stations in multiple groups) sends the confirmation message to the transmitting station (Fig. 3, BS) in accordance with the first feedback phase and the at least one fourth receiving station (Fig. 3, shows multiple mobile stations in multiple groups) sends the confirmation message in accordance with the second feedback phase (Page 856, fig. 4 discloses a means of polling which allows each group to signal back to the source at predetermined intervals of time).

As per claim 5, Inoue teaches the method of claim 4, wherein, after the transmitting station has received and decoded the confirmation message from the at least one third receiving station of the first group, the transmitting station sends the confirmation message, which it received from the at least one third receiving station of the first group, to the at least one fourth receiving station of the second group (page 856, section 3.2, Inoue discloses where the base station polls the RS of another group after receiving an ACK from the current group. The base station repeats this operation until it receives an ACK frame from the last group. Note that this polling frame sent from the base station to another group signals that all the previous groups have confirmed receiving the multicast message);

wherein the feedback scheme is adapted such that the confirmation message of the at least one third station of the first group is decoded at the transmitting station and sent to the at least one fourth receiving station of the second group before the at least one fourth receiving station sends the confirmation message to the transmitting station (page 856, section 3.2, Inoue discloses where the base station polls the RS of another group after a certain time, thus a representative station in a second group will not transmit a confirmation message until it has been sent a polling frame).

As per claim 6, Inoue teaches the method of claim 5, wherein, when the confirmation message decoded at the at least one fourth receiving station is the negative acknowledgement message, the at least one fourth receiving station of the second group does not send its own negative acknowledgement message (Page 856 section 3.2; Inoue discloses where a station sending a NACK frame must listen to the channel and must quit transmission if another station sends a NACK frame).

As per claim 7 and 21, Inoue teaches the method of claim 4, wherein the at least one third receiving station and the at least one fourth receiving station only send the confirmation message in case the decoding of the data of the at least one third receiving station and the at least one fourth receiving station is unsuccessful such that the at least one third receiving station and the at least one fourth receiving station only send the negative acknowledgement message indicating that the data could not be decoded error-free (Page 855, section 3.1.2, Inoue discloses Non-Representative stations, which only return NACK frames).

As per claim 8, Inoue teaches the method of claim 4, wherein, after a retransmission of the data, the transmitting station listens only to third groups of the plurality of groups which have

not sent the positive acknowledgement message with respect to the data (This limitation is disclosed in fig. 4 on page 856, section 3.2 by Inoue, whereby the transmitting station only polls one group at a time. In the case where a retransmission is needed, the transmitting station waits to receive an ACK/NACK only from the group that is being polled at the time of retransmission.);

wherein the third groups are considered to have sent the positive acknowledgement message in case all of the receiving stations belonging to the groups have sent the positive acknowledgement message (page 855, section 3.1.2, Inoue discloses that the Representative station is selected from the members of a group. The role of the RS is to return an ACK or a NACK frame for the received multicast datagram when it is polled by the base station).

As per claim 9 and 20, the combination of Inoue and Satran teach the method of claim 1. Furthermore Inoue teaches wherein the confirmation message is a negative acknowledgement message indicating that the at least one second receiving station could not decode the data error-free (page 856, Inoue discloses where the polled Representative station returns an ACK or NACK frame depending on its result of reception);

And wherein the transmitting station retransmits the data upon reception and decoding of the confirmation message (Page 856, Inoue disclose that when the base station received a NACK frame, it retransmits the multicast data frame again).

As per claim 10, the combination of Inoue and Satran teach the method of claim 1. Furthermore Inoue teaches wherein the confirmation message is a positive acknowledgement message indicating that the at least one second receiving station decoded the data error-free (Page 856, section 3.2, Inoue discloses when the frame that the base station received was an

ACK frame and no NACK frame followed, the base station polls the RS of another group after a certain time);

and wherein the transmitting station retransmits the data after not receiving the confirmation message from one of the plurality of first receiving stations (Page 856, section 3.2, Inoue discloses when the base station received a NACK frame, it retransmits the multicast data frame again).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 11-18 and 22-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Non-Patent Literature "Reliable Multicast Protocol with a Representative Acknowledgment Scheme for Wireless Systems" to Inoue and further in view of Publication 2003/0207696 to Willenegger et al. (hereinafter Willenegger) as well as Patent 6044069 to Wan and Publication 2002/0133615 to Satran et al (hereinafter Satran).

As per claims 1, 18, 22 and 23 Inoue teaches a method of performing a point-to-multipoint data transmission from a transmitting station (BS, fig. 3, page 855, Inoue) to a plurality of first receiving stations (Station group1, group2 and group3, fig. 3, page 855, Inoue),

the method comprising the steps of (page 856, Inoue discloses where the base station transmits a multicast data frame destined to all members of the multicast receiver group in the cell):

transmitting data from the transmitting station (BS, fig. 3, page 855, Inoue) to the plurality of first receiving stations (Station group1, group2 and group3, fig. 3, page 855, Inoue. Also, page 856, Inoue discloses where the base station transmits a multicast data frame destined to all members of the multicast receiver group in the cell);

receiving a confirmation message with respect to the data from at least one second receiving station (fig. 3, discloses multiple stations within groups 1 and 2, Inoue) of the plurality of first receiving stations at the transmitting station (page 856, Inoue discloses where the polled Representative station returns an ACK or NACK frame depending on its result of reception.);

Although Inoue teaches a transmitting station (Fig. 3, BS) that polls the plurality of first receiving stations (Fig.3, Inoue shows where multiple stations are grouped) with each group being polled in response to a confirmation message sent by the representative station.

Inoue is silent on the claim language transmitting the confirmation message from the transmitting station to at least one third receiving station of the plurality of first receiving stations

However, Satran discloses where a receiving station sends a confirmation message back to the transmitting station, at which point the transmitting station immediately multicasts the confirmation message to the other receiving stations (Abstract, lines 5-8, Satran).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the system of Inoue by incorporating a means for multicasting the confirmation message to the plurality of first receiving stations as suggested by Satran. The

suggestion for the modification is because transmitting stations need a reliable and efficient means of acknowledging whether the multicast message has been decoded properly. This modification would benefit the system of Inoue by ensuring that receiving stations can respond to multicast messages in an orderly and reliable way.

As per claim 11, the combination of Inoue and Satran teach the method of.

All though the combination of Inoue and Satran teach a method for reliable multicasting, the reference is silent on wherein the method is applied in the context of Multimedia Broadcast Multicast Services in UMTS.

However, Willenegger discloses techniques to implement MBMS services in a wireless communication system that cover various aspects of point-to-multipoint transmissions for broadcast and multicast services (Paragraph 0008). Willenegger further discloses that the base station used for multicasting is part of the UMTS Radio Access Network (Paragraph 0023).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue and Satran by incorporating a Multimedia Broadcast Multicast Services as suggested by Willenegger. The suggestion for the modification is because new generation networks would like to support the transmission of various types of data to a wide area of users. This modification would benefit the combination by ensuring that multicast and broadcast of real-time data to a wide area of users at higher speeds can be reliably accomplished.

As per claim 12, Inoue teaches the method according to claim 4.

Although Inoue teaches a method for reliable multicasting for wireless systems, the reference is silent on wherein the confirmation message comprises confirmation data in form of soft bits. wherein a soft-combining of the confirmation message of the at least one third receiving station of the first group with the confirmation message of the at least one fourth receiving station of the second group is performed.

However, Willenegger discloses that MBMS transmission can be coordinated across multiple cells, which would allow autonomous soft combining of the MBMS data by the terminal (Paragraph 0137).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the system of Inoue by incorporating a means for soft combining as suggested by Willenegger. The suggestion for the modification is because in wireless networks such as CDMA, the large amounts of streaming data may result in high bit error rates. This modification would benefit the system by ensuring the reduction in bit error rates by the cohesion of streaming data from multiple base stations as done by soft combining.

As per claim 13, Inoue teaches the method according to claim 4, wherein a fifth receiving station of the plurality of first receiving stations determines a fourth group of the plurality of groups of first receiving stations after receiving information about the number of groups of the first receiving stations available for grouping (Page 855, section 3.1.1, Inoues discloses that If there is no other station within the transmission range of that station, the station sends a request to form a new station group because that station could find no station groups to join);

wherein, after determination of the fourth group, the fifth receiving station considers itself to belong to the fourth group (Page 855, section 3.1.1, Inoue discloses that if there is no other station within the transmission range of that station, the station sends a request to form a new station group. Then the station is considered as a station group which comprises one station);

Although Inoue teaches the determination of another group by a receiving station, the reference is silent on wherein the determination of the fourth group to which the fifth receiving station considers itself to belong to is performed by the fifth receiving station without additional signaling.

However Wan teaches a method for registering mobile stations in a cell located in the same geographic region. Whereby the registration module generates a 6 bit value determined by a hash function combined with a modulo operation, performed on the TMSI or IMSI value (Wan: Col. 17, lines 25-30). Thus, additional signaling back to the base station is avoided.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the system of Inoue by incorporating a means for determining a group by a receiver station without a request to the base station as suggested by Wan. The suggestion for the modification is because additional signaling may require excessive use of available transmission power. This modification would benefit the system by ensuring the reduction of transmission power needed to create, determine or join groups for receiving multicast messages.

As per claim 14, the combination of Inoue and Wan teach the method according to claim 13. Furthermore, the combination of Inoue and Wan teach wherein the determination of the fourth group to which the fifth receiving station is assigned is performed on the basis of at least one of a random number generated by the fifth receiving station, a modulo operation applied to one of an IMSI and a TMSI of the fifth receiving station (Col. 17, lines 25-30, Wan discloses where the process of registering a mobile station includes generating a 6 bit value determined by a hash function combined with a modulo operation, performed on the TMSI or IMSI value),

The examiner provides the same rationale as provided for claim 13 as the motivation for combining Inoue and Wan. The rationale being that suggestion for the modification is because additional signaling may require excessive use of available transmission power. This modification would benefit the system by ensuring the reduction of transmission power needed to create, determine or join groups for receiving multicast messages.

The combination of Inoue and Wan is silent on the claim language and a determined path loss during the data transmission

However, Willenegger teaches where the network collects quality information pertaining to data transmission from the end users (UE terminals) in an MBMS service. This information includes round-trip time, network topology, and path-loss (Paragraph 0244, Willenegger).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue and Wan by incorporating a means for determining a path loss for data transmission as suggested by Willenegger. The suggestion for

the modification is because path loss can dramatically affect the quality of service between mobile stations and the base station in a multicasting environment. This modification would benefit the combination of Inoue and Wan by ensuring that a manageable quality of service is maintained by reporting measurements such as path loss for data transmissions.

As per claim 15, the combination of Inoue and Satran teach the method according to claim 1.

The combination is silent on the claim language wherein the confirmation message is transmitted to the transmitting station from at least one sixth receiving station of the plurality of first receiving stations with a first transmission power;

However Willenegger discloses in Paragraph 0202, where an uplink power control mechanism is implemented to control the transmit power of the uplink transmission.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue and Satran by incorporating a means for controlling the transmission power for transmitting confirmation messages to the base station, as suggested by Willenegger. The suggestion for the modification is because messages transmitted during uplink consume considerable amount of transmission power. This modification would benefit the combination of Inoue and Satran by managing and ensuring the availability of transmission power for uplinks for the plurality of receiving terminals.

Inoue teaches wherein, when a minimum number of sixth receiving stations transmits the confirmation message in accordance with a third feedback phase in accordance with a feedback

scheme (Page 856, fig. 4 discloses a means of polling which allows each group to signal back to the source with an ACK or NACK, at predetermined intervals of time),

The combination of Inoue and Satran is silent on the claim language resulting in a superposition of confirmation messages and therefore in an increase of power received at the transmitting station, the received power at the transmitting station is sufficient for decoding the superposition of confirmation messages;

However Willenegger discloses in Paragraph 0202, where an uplink power control mechanism is implemented to control the transmit power of the uplink transmission. Thus, during the uplink data transmission, the transmission power can be increased or decreased to a desired level.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue and Satran by incorporating a means for controlling the transmission power for transmitting confirmation messages to the base station, as suggested by Willenegger. The suggestion for the modification is because messages transmitted during uplink consume considerable amount of transmission power. This modification would benefit the combination of Inoue and Satran by managing and ensuring the availability of transmission power for uplinks for the plurality of receiving terminals.

The combination of Inoue and Satran is silent on the claim language and wherein, when less than a minimum number of sixth receiving stations transmits the confirmation message in

accordance with the third feedback phase, the received power at the transmitting station is not sufficient for decoding the superposition of confirmation messages.

However Willenegger discloses in Paragraph 0202, where an uplink power control mechanism is implemented to control the transmit power of the uplink transmission. Thus, during the uplink data transmission, the transmission power can be increased or decreased to a desired level.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue and Satran by incorporating a means for controlling the transmission power for transmitting confirmation messages to the base station, as suggested by Willenegger. The suggestion for the modification is because messages transmitted during uplink consume considerable amount of transmission power. This modification would benefit the combination of Inoue and Satran by managing and ensuring the availability of transmission power for uplinks for the plurality of receiving terminals.

As per claim 16, Inoue teaches the method according to claim 4.

Inoue is silent on the claim language wherein, after the at least one third receiving station has sent the confirmation message with a second transmission power to the transmitting station in accordance with the first feedback phase, it sends the confirmation message in accordance with the second feedback phase and with a third transmission power; and wherein the third transmission power is higher than the second transmission power.

However Willenegger discloses in Paragraph 0202, where an uplink power control mechanism is implemented to control the transmit power of the uplink transmission. Thus, during the uplink data transmission, the transmission power can be increased or decreased to a desired level.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention, to modify the combination of Inoue by incorporating a means for controlling the transmission power for transmitting confirmation messages to the base station, as suggested by Willenegger. The suggestion for the modification is because messages transmitted during uplink consume considerable amount of transmission power. This modification would benefit the system of Inoue by managing and ensuring the availability of transmission power for uplinks for the plurality of receiving terminals.

As per claim 17, the combination of Inoue and Satran teach the method of claim 1. Furthermore, Inoue teaches wherein the data is a data packet (page 856, Inoue discloses that the polled RS returns an ACK or a NACK **frame**);

wherein the method is a retransmission protocol in a cellular radio communication system (Page 856, Inoue discloses that a retransmission control mechanism such as RMTP will be required to increase reliability of data delivery).

Conclusion

6. Prior arts made of record, not relied upon:

US 7,130,282 B2 to Black discloses communication device for providing multimedia in a group communication network

US 6,996,410 B2 to Bos et al. discloses a method and broadcast multicast service server for data broadcasting in third generation networks

US 2006/0274780 A1 to Walsh et al. discloses broadcast/multicast service signaling

US 6,959,199 B2 to Ohkubo et al. discloses multicast signal transmission power control method and base station using the same

EP 1,063,782 A2 to Kosuke discloses multicast message communication and power control method

US 6,728,226 B1 to Naito discloses multicast message communicating method, multicast message communicating system, base station thereof and mobile station

US 7,203,512 B2 to Jeong et al. discloses soft combining apparatus and method in a CDMA mobile communication system providing MBMS service

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yosief Berhane whose telephone number is (571) 274-7164. The examiner can normally be reached at 7:30-5:00 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi T. Arani can be reached at (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Y.B/

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4144